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(54) TRANSMISSION INFORMATION RELAY SERVER, TRANSMISSION INFORMATION RELAY METHOD AND ITS SYSTEM

(57)Abstract:

PROBLEM TO BE SOLVED: To reduce an access time in the case that a client acquires transmission information.

SOLUTION: A transmission information relay server 4 is connected to a client 8 by a LAN 7 and to a transmission information server 2 by a computer network 6. In the transmission information relay server 4, a transmission information acquisition section 12, a transmission information storage section 14 and a transmission information transmission section 16 are connected to a transmission information control section 10. The transmission information from the transmission information server 2 is acquired by the transmission information acquisition section 12 in a predetermined timing. The transmission information is stored in the transmission information storage section 14 via the transmission information control section 10. In the case of receiving a signal denoting request of transmission information from the client 8, the transmission information control section 10 reads the transmission information corresponding to the signal from the transmission information storage section
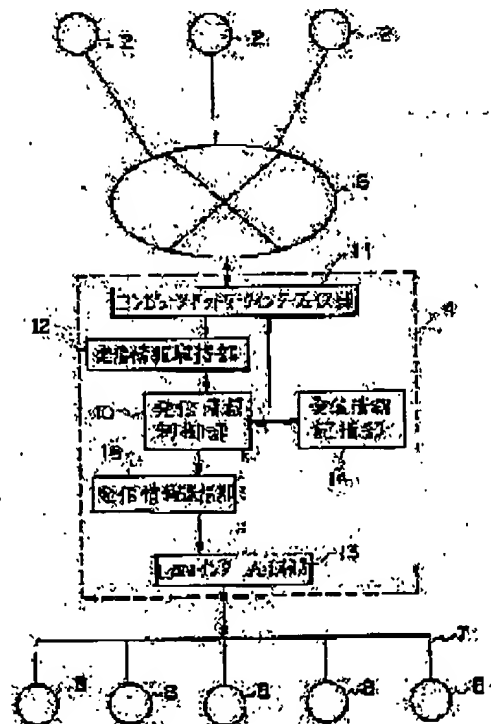
14. Then the transmission information is sent to the client 8 via the transmission transmission section 16.

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CLAIMS

[Claim(s)]
[Claim 1] A dispatch information acquisition means to acquire the predetermined dispatch
information on a computer network to the timing defined beforehand, A dispatch
information storage means to memorize said predetermined dispatch information acquired
by this dispatch information acquisition means, When receiving the demand signal of the
purport which requires said predetermined dispatch information from the client connected
through the computer network The dispatch information junction server characterized by
having a dispatch information transmitting means to read said predetermined dispatch
information which corresponds from said dispatch information storage means, and to
transmit this dispatch information to said client.
[Claim 2] The 1st dispatch information acquisition means which acquires the
predetermined dispatch information on a computer network to the timing defined
beforehand, this — with a self-section dispatch information storage means to memorize
said predetermined dispatch information acquired by the 1st dispatch information
acquisition means as self-section dispatch information The dispatch information junction
server which **** is the dispatch information relay system which it comes to connect
mutually possible [a communication link]. Said dispatch information junction server The
2nd dispatch information acquisition means which acquires dispatch information from the
self-section dispatch information storage means of other dispatch information junction
servers, Memorize the dispatch information acquired by said 2nd dispatch information
acquisition means as other sections dispatch information, and also A section dispatch
information storage means, When receiving the demand signal of the purport which
requires dispatch information from the client connected through the computer network,
said other sections dispatch information is read from said other sections dispatch
information storage means. The dispatch information relay system characterized by
transmitting this dispatch information to said client, and also having a section dispatch
information transmitting means.
[Claim 3] A dispatch information share means to transmit and receive the share dispatch
information that said 2nd dispatch information acquisition means comes to record the
predetermined dispatch information on a computer network, among other dispatch
information junction servers, When the self-section dispatch information memorized by
said self-section dispatch information storage means is newer than the dispatch
information corresponding to said self-section dispatch information included in said share
dispatch information, The renewal means of share dispatch information which rewrites the
dispatch information corresponding to said self-section dispatch information included in

said share dispatch information to said self-section dispatch information, When said other sections dispatch information storage means memorized and also section dispatch information is older than the dispatch information corresponding to said other sections dispatch information included in said share dispatch information, The dispatch information relay system according to claim 2 characterized by rewriting said other sections dispatch information to the dispatch information corresponding to said other sections dispatch information included in said share dispatch information, and also having a renewal means of section dispatch information.

[Claim 4] Said 2nd dispatch information acquisition means is a dispatch information relay system according to claim 2 or 3 characterized by acquiring dispatch information from the self-section dispatch information storage means of other dispatch information junction servers periodically.

[Claim 5] The dispatch information acquisition step which acquires the predetermined dispatch information on a computer network to the timing defined beforehand, The dispatch information storage step which memorizes said predetermined dispatch information acquired by this dispatch information acquisition step in dispatch information storage memory, When receiving the signal of the purport which requires said predetermined dispatch information from the client connected through the computer network The dispatch information junction approach characterized by having the dispatch information transmitting step which transmits said predetermined dispatch information read from said dispatch information storage memory to said client.

[Claim 6] Two or more dispatch information junction servers mutually connected possible [a communication link] through the computer network It is the dispatch information junction approach of acquiring dispatch information from the server connected through the computer network, and transmitting this dispatch information to a client. The dispatch information junction server of 1 The 1st dispatch information acquisition step which acquires the predetermined dispatch information on a computer network to the timing defined beforehand, this — with the self-section dispatch information storage step memorized in self-section dispatch information storage memory by making into self-section dispatch information said predetermined dispatch information acquired by the 1st dispatch information acquisition step The 2nd dispatch information acquisition step which acquires dispatch information from the self-section dispatch information storage memory of other dispatch information junction servers, this — it memorizing in other sections dispatch information storage memory by making into other sections dispatch information dispatch information acquired by the 2nd dispatch information acquisition step, and also with a section dispatch information storage step When the signal which requires dispatch information from the client connected through the computer network is received, said other sections dispatch information that it corresponds from said other sections dispatch information storage memory is read. The dispatch information junction approach characterized by transmitting this dispatch information to said client, and also having a section dispatch information transmitting step.

[Claim 7] The dispatch information share step which transmits and receives the share dispatch information that said 2nd dispatch information acquisition step comes to record the predetermined dispatch information on a computer network, among other dispatch information junction servers, When the self-section dispatch information memorized by said self-section dispatch information storage memory is newer than the dispatch information corresponding to said self-section dispatch information included in said share dispatch information, The renewal step of share dispatch information which rewrites the dispatch information corresponding to said self-section dispatch information included in

said share dispatch information to said self-section dispatch information. When said other sections dispatch information storage memory memorized and also section dispatch information is older than the dispatch information corresponding to said other sections dispatch information included in said share dispatch information. The dispatch information junction approach according to claim 6 characterized by rewriting said other sections dispatch information to the dispatch information corresponding to said other sections dispatch information included in said share dispatch information, and also having a renewal step of section dispatch information.

[Claim 8] Said 2nd dispatch information acquisition step is the dispatch information junction approach according to claim 6 or 7 characterized by acquiring dispatch information from the self-section dispatch information storage memory of other dispatch information junction servers periodically.

[Translation done.]

DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Field of the Invention] Especially, dispatch information is acquired and this invention
relates to a dispatch information junction server and the dispatch information junction
approach list at the system and the thing which transmits to a client.
[0002]
[Description of the Prior Art] When the client (terminal) connected with the computer
network generally acquires specific dispatch information, there is technique as shown
below. That is, a client transmits the signal of the purport which requires dispatch
information to the router on a computer network. Then, a router is accessed to the
dispatch information offer server holding the dispatch information corresponding to the
above-mentioned signal. A dispatch information offer server reads the dispatch information
corresponding to the above-mentioned signal from the self-inside of a plane, and transmits
this dispatch information to a client through a router. The proxy server which has a cache
function may be used at this time.
[0003] Drawing 8 is drawing showing the computer network containing the proxy server
which has a cache function. In this drawing, the client 80 and the dispatch information
offer server 82 are arranged on the computer network. The proxy server 84 is arranged
between the client 80 and the dispatch information offer server 82. And between a client
80 and a proxy server 84 and between the dispatch information offer server 82 and the
proxy server 84, the direct network connects or it connects through one or more routers
86. The proxy server 84 is acting as intermediary by receiving the dispatch information
from the signal of the purport which requires the dispatch information from the client 80 of
predetermined within the limits, and the dispatch information offer server 82. Under the
present circumstances, the proxy server 84 has the cache function, and about the
dispatch information which the client 80 accessed once, after receiving that dispatch
information from the dispatch information offer server 82, it memorizes dispatch
information to the self-inside of a plane while it transmits to a client 80.
[0004] In this computer network, when a client 80 acquires dispatch information, the signal
of the purport which requires dispatch information is first transmitted to a proxy server 84
through a router 86. Then, a proxy server 84 transmits the signal of the purport which
requires dispatch information through a router 86 to the dispatch information offer server
82 in which the dispatch information corresponding to the signal of the purport which
requires dispatch information was stored. In the dispatch information offer server 82, the
signal of the purport which requires this dispatch information is received, and the dispatch
information corresponding to this is transmitted to a proxy server 84 through a router 86.

Then, in a proxy server 84, while transmitting this dispatch information to a client 80 through a router 86, the cache of the above-mentioned dispatch information is carried out to the self-inside of a plane. For this reason, when a proxy server 84 receives the demand signal of the above-mentioned dispatch information again from the client 80 of predetermined within the limits, corresponding dispatch information can be read from the self-inside of a plane, and it can transmit to a client 80. Consequently, since it is not necessary to access a client 80 to the dispatch information offer server 82 and it can exclude the communication link between a proxy server 84 and the dispatch information offer server 82, it can acquire the dispatch information to demand quickly.
[0005]
[Problem(s) to be Solved by the Invention] However, there is a trouble shown below in an above-mentioned approach. That is, the client 80 of the dispatch information by which the cache is carried out to the proxy server 84 is only the dispatch information accessed to the dispatch information offer server 82 in the past. For this reason, since it must access to the dispatch information offer server 82 in order for a client 80 to acquire the dispatch information in which the proxy server 84 has not carried out a cache, when the distance from the proxy server 84 to the dispatch information offer server 82 is separated, there is a trouble that acquiring dispatch information takes time amount.
[0006] Moreover, since each dispatch information offer server 82 has only the dispatch information assigned to self, when a demand of specific dispatch information concentrates on one dispatch information offer server 82, it has the trouble that the processing burden placed on this dispatch information offer server 82 will become heavy. For this reason, for example to a client 80 and a proxy server 84, although required processing is performed, it will take time amount.
[0007] Moreover, when a proxy server 84 carries out a cache and a client 80 does not access from from for a long period of time, there is a trouble that the dispatch information by which the cache is carried out to the proxy server 84 will become old.
[0008] Made in order that this invention may solve the above troubles, the 1st purpose of this invention is to provide with the system the dispatch information junction server and the dispatch information junction approach list which can shorten the access time at the time of a client acquiring dispatch information.
[0009] Moreover, the 2nd purpose of this invention is to provide with the system the dispatch information junction server and the dispatch information junction approach list which can reduce the processing load of the server which offers dispatch information.
[0010] Moreover, the 3rd purpose of this invention is to always provide the dispatch information junction server and the dispatch information junction approach list holding the newest dispatch information with the system.
[0011]
[Means for Solving the Problem] In order to attain the above purposes, the dispatch information junction server concerning the 1st invention A dispatch information acquisition means to acquire the predetermined dispatch information on a computer network to the timing defined beforehand, A dispatch information storage means to memorize said predetermined dispatch information acquired by this dispatch information acquisition means, When receiving the demand signal of the purport which requires said predetermined dispatch information from the client connected through the computer network Said predetermined dispatch information which corresponds from said dispatch information storage means is read, and it has a dispatch information transmitting means to transmit this dispatch information to said client.
[0012] 1st dispatch information acquisition means by which the dispatch information relay

system concerning the 2nd invention acquires the predetermined dispatch information on a computer network to the timing defined beforehand, this — with a self-section dispatch information storage means to memorize said predetermined dispatch information acquired by the 1st dispatch information acquisition means as self-section dispatch information The dispatch information junction server which **** is the dispatch information relay system which it comes to connect mutually possible [a communication link]. Said dispatch information junction server The 2nd dispatch information acquisition means which acquires dispatch information from the self-section dispatch information storage means of other dispatch information junction servers, Memorize the dispatch information acquired by said 2nd dispatch information acquisition means as other sections dispatch information, and also A section dispatch information storage means, When receiving the demand signal of the purport which requires dispatch information from the client connected through the computer network, said other sections dispatch information is read from said other sections dispatch information storage means. This dispatch information is transmitted to said client, and also it has a section dispatch information transmitting means.

[0013] The dispatch information relay system concerning the 3rd invention said 2nd dispatch information acquisition means according to claim 2 A dispatch information share means to transmit and receive the share dispatch information which comes to record the predetermined dispatch information on a computer network among other dispatch information junction servers; When the self-section dispatch information memorized by said self-section dispatch information storage means is newer than the dispatch information corresponding to said self-section dispatch information included in said share dispatch information, The renewal means of share dispatch information which rewrites the dispatch information corresponding to said self-section dispatch information included in said share dispatch information to said self-section dispatch information, When said other sections dispatch information storage means memorized and also section dispatch information is older than the dispatch information corresponding to said other sections dispatch information included in said share dispatch information, Said other sections dispatch information is rewritten to the dispatch information corresponding to said other sections dispatch information included in said share dispatch information, and also it has a renewal means of section dispatch information.

[0014] In the dispatch information relay system concerning the 4th invention, said 2nd dispatch information acquisition means according to claim 2 or 3 acquires dispatch information from the self-section dispatch information storage means of other dispatch information junction servers periodically.

[0015] The dispatch information acquisition step from which the dispatch information junction approach concerning the 5th invention acquires the predetermined dispatch information on a computer network to the timing defined beforehand, The dispatch information storage step which memorizes said predetermined dispatch information acquired by this dispatch information acquisition step in dispatch information storage memory, When receiving the signal of the purport which requires said predetermined dispatch information from the client connected through the computer network It has the dispatch information transmitting step which transmits said predetermined dispatch information read from said dispatch information storage memory to said client.

[0016] Two or more dispatch information junction servers mutually connected possible [a communication link] through the computer network the dispatch information junction approach concerning the 6th invention It is the dispatch information junction approach of acquiring dispatch information from the server connected through the computer network, and transmitting this dispatch information to a client. The dispatch information junction

server of 1 The 1st dispatch information acquisition step which acquires the predetermined dispatch information on a computer network to the timing defined beforehand, this — with the self-section dispatch information storage step memorized in self-section dispatch information storage memory by making into self-section dispatch information said predetermined dispatch information acquired by the 1st dispatch information acquisition step The 2nd dispatch information acquisition step which acquires dispatch information from the self-section dispatch information storage memory of other dispatch information junction servers, this — it memorizing in other sections dispatch information storage memory by making into other sections dispatch information dispatch information acquired by the 2nd dispatch information acquisition step, and also with a section dispatch information storage step When the signal which requires dispatch information from the client connected through the computer network is received, said other sections dispatch information that it corresponds from said other sections dispatch information storage memory is read. This dispatch information is transmitted to said client, and also it has a section dispatch information transmitting step.

[0017] The dispatch information junction approach concerning the 7th invention said 2nd dispatch information acquisition step according to claim 6 The dispatch information share step which transmits and receives the share dispatch information which comes to record the predetermined dispatch information on a computer network among other dispatch information junction servers, When the self-section dispatch information memorized by said self-section dispatch information storage memory is newer than the dispatch information corresponding to said self-section dispatch information included in said share dispatch information, The renewal step of share dispatch information which rewrites the dispatch information corresponding to said self-section dispatch information included in said share dispatch information to said self-section dispatch information, When said other sections dispatch information storage memory memorized and also section dispatch information is older than the dispatch information corresponding to said other sections dispatch information included in said share dispatch information, Said other sections dispatch information is rewritten to the dispatch information corresponding to said other sections dispatch information included in said share dispatch information, and also it has a renewal step of section dispatch information.

[0018] The dispatch information junction approach concerning the 8th invention acquires dispatch information periodically [said 2nd dispatch information acquisition step according to claim 6 or 7] from the self-section dispatch information storage memory of other dispatch information junction servers.

[0019]
[Embodiment of the Invention] Hereafter, the gestalt of suitable operation of this invention is explained based on a drawing.

[0020] Gestalt 1. drawing 1 of operation is drawing showing an example of the computer network containing the dispatch information junction server which is the gestalt 1 of operation. The dispatch information junction server 4 is connected by two or more clients 8 and LANs7 in this drawing. Moreover, the dispatch information junction server 4 is connected with the dispatch information offer server 2 by the computer network 6.

[0021] The dispatch information junction server 4 has the dispatch information control section 10. The dispatch information acquisition section 12, the dispatch information storage section 14, and the dispatch information transmitting section 16 are connected to the dispatch information control section 10. And the dispatch information acquisition section 12 is connected with the computer network interface section 11. This computer network interface section 11 is connected also with the dispatch information control

section 10. On the other hand, the dispatch information transmitting section 16 is connected with the LAN interface section 13, and this LAN interface section 13 is connected also with the dispatch information control section 10.

[0022] The dispatch information control section 10 passes the dispatch information corresponding to the above-mentioned signal to the dispatch information transmitting section 16, after receiving the signal of the purport which requires the dispatch information by the client 8 through the LAN interface section 13. Moreover, the dispatch information control section 10 is the timing defined beforehand, and after it transmits the signal of the purport which requires dispatch information of the dispatch information offer server 2 through the computer network interface section 11, it receives dispatch information from the dispatch information acquisition section 12.

[0023] In the dispatch information acquisition section 12, the dispatch information corresponding to the above-mentioned signal is acquired from the dispatch information offer server 2 through the computer network interface section 11.

[0024] In the dispatch information storage section 14, the dispatch information acquired by the dispatch information acquisition section 12 is memorized through the dispatch information control section 10.

[0025] In the dispatch information transmitting section 16, when the signal of the purport which requires dispatch information of the LAN interface section 13 from a client 8 is received, actuation shown below is performed. That is, the dispatch information transmitting section 16 transmits the dispatch information read from the dispatch information storage section 14 to a client 8.

[0026] In addition, the dispatch information junction server 4 may be connected with the dispatch information offer server 2 by LAN7. In this case, the dispatch information offer server 2 connected by LAN7 is connected with the computer interface section 11. And a client 8 may transmit the signal of the purport which requires dispatch information to the dispatch information junction server 4, and may access the purport which requires dispatch information of the direct dispatch information offer server 2.

[0027] Thus, in the constituted dispatch information junction server 4, it is the timing which was not concerned with the existence of access of a client 8, but was defined beforehand, for example, dispatch information is itself acquired from the dispatch information offer server 2 by the dispatch information acquisition section 12 through the computer network interface section 11 for every fixed time amount. And the dispatch information storage section 14 is made to memorize this dispatch information. And when a client 8 acquires specific dispatch information, the signal of the purport which requires this dispatch information is transmitted to the dispatch information junction server 4. Then, in the dispatch information junction server 4, the dispatch information control section 10 reads the dispatch information corresponding to the above-mentioned demand signal from the dispatch information storage section 14. And the dispatch information read from the dispatch information storage section 14 is transmitted to a client 8 by the dispatch information transmitting section 16.

[0028] In the dispatch information junction server 4 which is the gestalt 1 of operation of this invention, the dispatch information which a client 8 does not access is also itself acquired from two or more dispatch information offer servers 2 to the timing defined beforehand. For this reason, since accesses between the dispatch information junction server 4 and the dispatch information offer server 2 are reducible after a client 8 accesses the dispatch information junction server 4, the access time about acquisition of dispatch information can be shortened.

[0029] Gestalt 2. drawing 2 of operation is drawing showing the relay system of the

dispatch information on the computer network containing the dispatch information junction server which is the gestalt 2 of operation. In drawing 2 , the same sign is given to the same component as drawing 1 , and the detailed explanation is omitted. In each predetermined range indicated to be A, B, and C division, the dispatch information junction servers 4a, 4b, and 4c are arranged. These dispatch information junction servers 4a, 4b, and 4c are connected by the dispatch information offer server 2, the router 5 and the client 8, and LAN of each predetermined within the limits of A, B, and C division, respectively. And the dispatch information junction servers 4a, 4b, and 4c receive the dispatch information from the signal of the purport which requires the dispatch information from the client 8 of predetermined within the limits, and the dispatch information offer server 2, and perform junction processing. Moreover, the dispatch information junction servers 4a, 4b, and 4c within A, B, and C section are mutually connected through the dedicated line 20. If this dedicated line 20 is used, a lot of dispatch information can be communicated at a high speed. In addition, A, B, and C division can set up a network unit, a company unit, a country unit, etc. freely. And the client 8 and the dispatch information offer server 2 shall belong to at least one or more divisions. Drawing 3 is the block diagram showing dispatch information junction server 4a. In addition, the dispatch information junction servers 4b and 4c are also the same structures. In dispatch information junction server 4a, the communication link state control section 40, the dispatch information acquisition section 34, the dispatch information storage section 36, and the dispatch information transmitting section 38 are connected to CPU30.

[0030] The dispatch Research and Data Processing Department 48 is built in CPU30. Administrative information, such as a unique serial code attached to this dispatch Research and Data Processing Department 48 by corresponding for every dispatch information and a division name, is held. Moreover, CPU30 directs transmission of the dispatch information on other dispatch information junction servers 4b and 4c.

[0031] In the communication link state control section 40, a status flag is read from flag memory (not shown). And in the communication link state control section 40, the status flag which shows whether it is communicating with other dispatch information junction server 4b or dispatch information junction server 4c or it is dispatch information acquiring from the dispatch information offer server 2 within the self-section is built, and the communication link condition of a self-opportunity is shown. And this communication link state control section 40 will be from the dispatch information from the demand signal of the dispatch information from a client 8, and the information offer server 2, and other dispatch information junction servers 4 in a receive state, when receiving dispatch information, and it connects with the dispatch information acquisition section 34. On the other hand, when transmitting dispatch information to other dispatch information junction servers 4b and 4c, or when transmitting dispatch information to a client 8, the communication link state control section 40 will be in a send state, and connects with the dispatch information transmitting section 38.

[0032] Moreover, this communication link state control section 40 is connected with the network interface section 42 installed in dispatch information junction server 4a. By this network interface section 42, dispatch information junction server 4a communicates with other dispatch information junction servers 4b and 4c, a client 8, or the dispatch information offer server 2. In addition, this communication link is performed corresponding to the network protocol in the case of acquiring dispatch information, such as HTTP. As this network protocol, although TCP/IP and HTTP are used, it is not limited to this and other means may be used.

[0033] Moreover, the dispatch information acquisition section 34 has the 1st dispatch

information acquisition function and the 2nd dispatch information acquisition function. That is, in the 1st dispatch information acquisition function, the dispatch information offer server 2 within the self-section to dispatch information (this is hereafter called self-section dispatch information) is acquired from the dispatch information offer server 2 within the self-section through the communication link state control section 40. Moreover, in the 2nd dispatch information acquisition function, the dispatch information transmitted from other dispatch information junction servers 4b and 4c is acquired.

[0034] Moreover, the dispatch information storage section 36 has the self-section dispatch information storage section 44 which memorizes the self-section dispatch information which the dispatch information acquisition section 34 acquired. Moreover, when the dispatch information junction server 4 of the other sections has transmitted the self-section dispatch information, the dispatch information storage section 36 is acquired by the dispatch information acquisition section 34, memorizes it as other sections dispatch information, and also it has the section dispatch information storage section 46. Information, such as the above-mentioned serial code, HTML page information, and a keyword for retrieval, is memorized by this dispatch information storage section 36.

[0035] The dispatch information transmitting section 38 has the function shown below, when the directions transmitted to other dispatch information junction servers 4b and 4c are received from CPU30 or the demand signal of dispatch information is received from the client 8 within the self-section. That is, the dispatch information transmitting section 38 transmits the dispatch information read from the dispatch information storage section 36 through the communication link state control section 40 and the network interface section 42.

[0036] In addition, although the HTML (hypertext) information which used WWW is used as dispatch information, other technique may be used, without being limited to this.

[0037] Actuation of the approach and system by which above-mentioned dispatch information junction server 4a acquires dispatch information on the network shown in drawing 2 is explained using the flow chart shown in drawing 4 . In addition, actuation of the approach and system which acquire the same dispatch information also in the dispatch information junction servers 4b and 4c is performed.

[0038] First, in step S102, dispatch information, such as HTML information and a keyword for retrieval, is acquired from the dispatch information offer server 2 within the self-section of dispatch information junction server 4a by the dispatch information acquisition section 34. Under the present circumstances, the status flag which tells the purport which cannot transmit dispatch information that reference is impossible is built in the communication link state control section 40, and he is trying not to receive the signal of the purport which requires the dispatch information from a client 8. In addition, it is desirable to acquire dispatch information from the dispatch information offer server 2 periodically like [for every fixed time amount], for example. Whenever it does so, dispatch information junction server 4a can hold the newest dispatch information.

[0039] Next, the self-section dispatch information acquired by the dispatch information acquisition section 34 is memorized in the self-section dispatch information storage section 44 through CPU30 at step S104. In addition, when data exist in the self-section dispatch information storage section 44 before acquiring dispatch information, this data is beforehand eliminated by CPU30. Moreover, as dispatch information to acquire, there are the resource information on a HTML page, an IP address, URL, etc. And the dispatch Research and Data Processing Department 48 holds administrative information among dispatch information. And the status flag which shows reference **** is built in the communication link state control section 40 by CPU30. And the communication link state

control section 40 will be in a receive state, and it is standing by that the signal from the outside comes.

[0040] Then, it judges whether the dispatch information which dispatch information junction server 4b of the other sections or dispatch information junction server 4c has at step S106 was received by the communication link state control section 40. When the above-mentioned dispatch information is received, at step S108, the dispatch information acquisition section 34 acquires the dispatch information on the other sections, and memorizes this dispatch information in the other sections dispatch information storage section 46. On the other hand, when the dispatch information on the other sections is not received by the communication link state control section 40, it shifts to step S110. And the status flag which shows reference **** is built in the communication link state control section 40, and it is standing by that the signal from the outside comes.

[0041] Then, it judges whether an indication signal which transmits dispatch information to other dispatch information junction server 4b or dispatch information junction server 4c was taken out with step S110 from CPU30 to the communication link state control section 40. When taken out to the communication link state control section 40, at step S112, dispatch information is read from the other sections dispatch information storage section 46 by CPU30, and this dispatch information is transmitted by the dispatch information transmitting section 38. And this dispatch information is transmitted to other dispatch information junction server 4b or dispatch information junction server 4c through the communication link state control section 40, the network interface section 42, and a dedicated line 20. On the other hand, when a dispatch information Request-to-Send signal is not taken out to the communication link state control section 40, it shifts to step S114.

[0042] And dispatch information is transmitted and received between the dispatch information junction servers 4a and 4b and 4c. About this transceiver approach, there is the approach of communicating cyclically to dispatch information junction server 4c from dispatch information junction server 4b and dispatch information junction server 4b from dispatch information junction server 4a, for example.

[0043] Then, when it is performed by judging at step S114 whether the process from the above-mentioned step S102 to S112 was performed the number of predetermined times, it ends. On the other hand, when not carried out the number of predetermined times, it returns to S102.

[0044] In addition, this above-mentioned count of predetermined is appropriately determined in consideration of the property of ******** of dispatch information.

[0045] In the dispatch information junction servers 4a, 4b, and 4c in the gestalt 2 of operation of this invention, while having memorized the dispatch information on the self-section, it connects mutually possible [a communication link]. For this reason, since every dispatch information junction server has memorized the dispatch information on the self-section and the other sections, the client 8 within A, B, and C section can acquire the dispatch information on the other sections, respectively, if it accesses to the dispatch information junction servers 4a, 4b, and 4c of the self-section.

[0046] Thus, how a client 8 acquires dispatch information from the information dispatch junction server which acquired dispatch information is explained using the flow chart shown in drawing 5 . As shown in drawing 2 , when the client 8 within A section acquires the dispatch information which the dispatch information offer server 2 of B section has, the acquisition approach as shown below is performed.

[0047] That is, it judges whether first, at step S202, directly, a client 8 accesses to the dispatch information offer server 2, and acquires dispatch information. When not performing direct access, a client 8 transmits the signal which requires dispatch

information to dispatch information junction server 4a within the self-section at step S204. On the other hand, in performing direct access, a client 8 goes by step S214 to access to the dispatch information offer server 2.

[0048] Under the present circumstances, when dispatch information can be acquired accessing the dispatch information offer server 2 of the direct other sections quickly [direction], you may access directly. Moreover, in the communication link state control section 40, also when status information cannot refer to, the dispatch information offer server 2 may be accessed directly. However, time amount [that status information cannot refer to] is very short as compared with the time amount which can be referred to. For this reason, it can be said that a client 8 hardly accesses to the direct dispatch information offer server 2 since status information cannot refer to.

[0049] And if the signal of the purport which requires acquisition of the above-mentioned dispatch information in the communication link state control section 40 is received, dispatch information will be read from the dispatch information storage section 36 by CPU30 at step S206.

[0050] And it judges by CPU30 whether the above-mentioned demand signal and corresponding dispatch information exist at step S208. When corresponding dispatch information exists, the above-mentioned dispatch information is transmitted to a client 8 at step S210. And a client 8 acquires this dispatch information and ends the acquisition process of above-mentioned dispatch information. On the other hand, when corresponding dispatch information does not exist, CPU30 checks the signal of the purport which requires dispatch information at step S212, and it judges directly whether the data which direct access to the dispatch information offer server 2 contain. When the data which direct the above-mentioned access contain directly, it goes to the dispatch information offer server 2 by step S214 to carry out direct access. And dispatch information junction server 4a receives dispatch information, and transmits to a client 8. or [that the dispatch information offer server 2 which has the dispatch information which a client 8 requires at step S216 is downed on the other hand when there are no data which direct direct access] — or the signal (down signal) which shows the purport not existing is transmitted to a client 8.

[0051] In the gestalt 2 of operation of this invention, since every dispatch information junction server 4a, 4b, and 4c is sharing the dispatch information on the entire interval (A, B, C section) of the self-section and the other sections, the dispatch information requirements from a client 8 cannot concentrate to one dispatch information offer server 2, and the processing burden of a server 2 can be reduced. or [moreover, / that the dispatch information offer server 2 which has the dispatch information which a client 8 requires is downed] — or when it does not exist, even if it does not access to the direct dispatch information offer server 2, a client 8 can acquire a down signal.

[0052] Gestalt 3. drawing 6 of operation is drawing showing dispatch information junction server 4a which is the gestalt 3 of operation. In addition, the dispatch information junction servers 4b and 4c are also the same structures. In drawing 6, the same sign is given to the same component as drawing 3, and the detailed explanation is omitted. In the gestalt 3 of this operation, a different point from drawing 3 is in the point that the dispatch information share section 60, the renewal section 62 of share dispatch information, the renewal section 64 of other sections dispatch information, and ** are built in the dispatch information acquisition section 34. In the gestalt 2 of operation, although the dispatch information transmitted from other dispatch information junction servers was memorized in the other sections dispatch information storage section 46 as it was, with the gestalt of this operation, only the newest dispatch information is memorized in the other sections

dispatch information storage section 46.

[0053] In the dispatch information share section 60, the newest dispatch information within C section on a computer network (for example, A and B) is recorded as share dispatch information. And CPU30 reads this share dispatch information from the dispatch information share section 60 if needed. This read share dispatch information is transmitted and received by the dedicated line 20 among other dispatch information junction servers 4b and 4c.

[0054] The renewal section 62 of share dispatch information rewrites the dispatch information corresponding to the above-mentioned self-section dispatch information included in the above-mentioned share dispatch information to the above-mentioned self-section dispatch information, when the self-section dispatch information memorized by the self-section dispatch information-storage section 44 is newer than the dispatch information corresponding to the above-mentioned self-section dispatch information included in the above-mentioned share dispatch information.

[0055] When the renewal section 64 of other sections dispatch information was memorized by the other sections dispatch information-storage section 46 and also section dispatch information is older than the dispatch information corresponding to section dispatch information besides the above included in the above-mentioned share dispatch information, it rewrites section dispatch information besides the above to the dispatch information corresponding to section dispatch information besides the above included in the above-mentioned share dispatch information.

[0056] How the above-mentioned dispatch information junction servers 4a, 4b, and 4c acquire the newest dispatch information is explained using the flow chart shown in <u>drawing 7</u>. In addition, in <u>drawing 7</u>, the same sign is given to the same component as <u>drawing 5</u>, and the detailed explanation is omitted.

[0057] In the gestalt 3 of operation of this invention, after step S106, other sections dispatch information is acquired and it records on the dispatch information share section 60 by making this dispatch information into share dispatch information by the dispatch information acquisition section 34 at step S301.

[0058] And the dispatch information memorized by the dispatch information and the other sections dispatch information storage section 46 which were memorized by the self-section dispatch information storage section 44 at step S302 is read, respectively.

[0059] And the renewal section 62 of share dispatch information compares self-section dispatch information and the dispatch information (henceforth the 1st correspondence share dispatch information) corresponding to this self-section dispatch information included in share dispatch information at step S304. And it judges whether self-section dispatch information is new. When the self-section dispatch information is newer, the 1st correspondence share dispatch information is updated to self-section dispatch information by the renewal section 62 of share dispatch information at step S306. And this updated 1st correspondence share dispatch information is recorded on the dispatch information share section 60. On the other hand, it shifts to step S308 without updating share dispatch information, when the self-section dispatch information is older.

[0060] At step S308, the renewal section 64 of other sections dispatch information compares the dispatch information (this is hereafter called 2nd correspondence share dispatch information) corresponding to section dispatch information besides the above among other sections dispatch information and share dispatch information. And it judges whether the other sections dispatch information is older. When the other sections dispatch information is older, section dispatch information besides the above is updated to the 2nd correspondence share dispatch information at step S310. And it was updated and also

section dispatch information is memorized in the other sections dispatch information storage section 46. On the other hand, when the newest dispatch information is not included in the 2nd correspondence share dispatch information as compared with other sections dispatch information, it shifts to step S110.

[0061] Moreover, since the self-section dispatch information or other sections dispatch information which the dispatch information offer server 2 holds can be acquired when a client 8 acquires dispatch information, a client 8 can acquire the newest dispatch information. or [and / that the dispatch information offer server 2 which has the dispatch information which a client 8 requires like the gestalt 2 of operation also in the gestalt of this operation is downed] — or when it does not exist, even if it does not access to the direct dispatch information offer server 2, a client 8 can acquire a down signal. On the other hand, the share dispatch information recorded on the dispatch information share section 60 is transmitted to other dispatch information junction servers.

[0062] In the gestalt 3 of operation of this invention, share dispatch information is transmitted and received between dispatch information junction servers. And this share dispatch information is rewritten by the newest self-section dispatch information which each dispatch information junction server holds. Moreover, each dispatch information junction server holds this share dispatch information, and it is old and also it updates section dispatch information to the newest thing. For this reason, while the share dispatch information transmitted and received between dispatch information junction servers is always and the newest, the dispatch information which each dispatch information junction server holds also becomes the newest thing. Consequently, the client 8 within A section can acquire the newest dispatch information, if it accesses to dispatch information junction server 4a within the self-section. Moreover, since share dispatch information is transmitted from other dispatch information junction servers even if dispatch information which a certain dispatch information junction server breaks down, for example, is held is lost, it can restore quickly.

[0063] In addition, in the gestalt of this operation, if share dispatch information by the dispatch information acquisition section 34 is acquired periodically, share dispatch information will become the much more newest thing.

[0064] Moreover, if the data for list reference are contained in the dispatch information which the dispatch information junction server 4 has, the effectiveness taken below will be acquired. That is, a client 8 can know beforehand all the dispatch information that each dispatch information acquisition server 4 has, if a dispatch information junction server is accessed if needed.

[0065]

[Effect of the Invention] He acquires from the server which offers dispatch information to the timing defined beforehand himself, and is trying to memorize this dispatch information also about the dispatch information on a client etc. which does not still have access according to invention shown in claim 1 and claim 5, as explained above. Consequently, accesses between a dispatch information junction server and the server which offers dispatch information can be reduced, and the access time about dispatch information acquisition can be shortened.

[0066] Moreover, in invention shown in claim 2 and claim 6, the dispatch information junction server is mutually connected possible [a communication link] while it has memorized the dispatch information on the self-section. And every dispatch information junction server has memorized the dispatch information on the self-section and the other sections. For this reason, a client can acquire the dispatch information on the other sections, if it accesses to the dispatch information junction server of the self-section.

Consequently, since it is not necessary to access a client to the server which offers the dispatch information in the other sections, it can shorten the access time for dispatch information acquisition to it. Moreover, since every dispatch information junction server is sharing the dispatch information on the self-section and the other sections, the dispatch information requirements from a client cannot concentrate to one server, and the processing burden of a server can be reduced.

[0067] Moreover, according to invention shown in claim 3 and claim 7, the share dispatch information transmitted and received between dispatch information junction servers is rewritten by the newest self-section dispatch information which each dispatch information junction server holds. Moreover, each dispatch information junction server holds this share dispatch information, and it is old and also it updates section dispatch information to the newest thing. For this reason, while the share dispatch information transmitted and received between dispatch information junction servers is always and the newest, the dispatch information which each dispatch information junction server holds also becomes the newest thing. Consequently, a client can acquire the newest dispatch information, if it accesses to the dispatch information junction server of the self-section.

[0068] Moreover, according to invention shown in claim 4 and claim 8, if dispatch information from other dispatch information junction servers is acquired periodically, other sections dispatch information storage memory etc. memorizes, and also section dispatch information can be made into the much more newest thing.

[Translation done.]